



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-9418; Directorate Identifier 2016-NE-23-AD]

RIN 2120-AA64

Airworthiness Directives; Honeywell International Inc. Turboprop and Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Honeywell International Inc. (Honeywell) TPE331 turboprop and TSE331 turboshaft engines. This proposed AD was prompted by reports that combustion chamber case assemblies have cracked and ruptured. This proposed AD would require inspection of the affected combustion chamber case assembly, replacement of those assemblies found cracked, and removal of affected assemblies on certain TPE331 engines. We are proposing this AD to correct the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Honeywell International Inc., 111 S 34th Street, Phoenix, AZ 85034-2802; phone: 800-601-3099; Internet: <https://myaerospace.honeywell.com/wps/portal/!ut/>. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-9418; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Joseph Costa, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; phone: 562-627-5246; fax: 562-627-5210; email: joseph.costa@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2016-9418; Directorate Identifier 2016-NE-23-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory,

economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

We have received reports of three accidents involving combustion chamber case assembly ruptures. Investigations have shown numerous cracked combustion chamber case assemblies resulting from high stresses in the as-designed weld joints and contributing factors due to repair weld quality, poor maintenance and inspection practices, and cycles-in-service. From 1979 to 2016, twenty-four of these cracked combustion chamber case assemblies have propagated to rupture. This condition, if not corrected, could result in failure of the combustion chamber case assembly, in-flight shutdown, and reduced control of the airplane.

Related Service Information under 1 CFR part 51

We reviewed Honeywell Service Bulletin (SB) TPE331-72-2178, Revision 0, dated May 3, 2011. The SB describes procedures for inspection and removal of the affected combustion chamber case assemblies. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Other Related Service Information

Honeywell has also issued SBs TPE331-72-2228, Revision 0, dated June 12, 2014; TPE331-72-2230, Revision 0, dated June 19, 2014; TPE331-72-2218, Revision 1, dated July 13, 2016; TPE331-72-2244, Revision 1, dated July 20, 2016; TPE331-72-

2235, Revision 1, dated July 21, 2016; TPE331-72-2281, Revision 0, dated July 22, 2016; TPE331-72-2294, Revision 0, dated December 22, 2016; and TSE331-72-2245, Revision 0, dated November 11, 2016. These SBs provide guidance on replacement of the affected combustion chamber case assemblies.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require inspection, replacement of the affected combustion chamber case assemblies, and removal of affected assemblies on certain TPE331 turboprop engines.

Differences Between this Proposed AD and the Service Information

This AD proposes inspection and replacement of high-stressed combustion chamber case assemblies and those chamber case assemblies found cracked at scheduled routine inspections. Honeywell SBs TPE331-72-2228, Revision 0, dated June 12, 2014; TPE331-72-2230, Revision 0, dated June 19, 2014; TPE331-72-2218, Revision 1, dated July 13, 2016; TPE331-72-2244, Revision 1, dated July 20, 2016; TPE331-72-2235, Revision 1, dated July 21, 2016; TPE331-72-2281, Revision 0, dated July 22, 2016; TPE331-72-2294, Revision 0, dated December 22, 2016; and TSE331-72-2245, Revision 0, dated November 11, 2016, recommend the removal and replacement of the combustion chamber case assembly at next removal from the engine, but no later than March 31, 2021 or December 31, 2021, depending on the respective engine.

Costs of Compliance

We estimate that this proposed AD affects 5,644 engines installed on airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
On-wing inspection	1 work-hour x \$85 per hour = \$85	\$0	\$85 per inspection	\$479,740 per inspection

We estimate the following costs to do any necessary replacements that would be required based on the results of the proposed inspection. We estimate that 158 engines will need this replacement during the first year of inspection.

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replacement of the combustion chamber assembly	1 work-hour X \$85 per hour = \$85	\$15,000	\$15,085

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Honeywell International Inc. (Type Certificate previously held by AlliedSignal Inc., Garrett Engine Division; Garrett Turbine Engine Company; and AiResearch Manufacturing Company of Arizona): Docket No. FAA-2016-9418; Directorate Identifier 2016-NE-23-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Honeywell International Inc. (Honeywell) TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -8, -10, -10AV, -10GP, -10GT, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, and -11U, -12JR, -12UA, -12UAR, -12UHR, -25AA, -25AB, -25DA, -25DB, -25FA, -43A, -43BL, -47A, -55B, and -61A model turboprop engines, and TSE331-3U model turboshaft engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7240, Turbine Engine Combustion Section.

(e) Unsafe Condition

This AD was prompted by reports that combustion chamber case assemblies have cracked and ruptured. We are issuing this AD to prevent failure of the combustion chamber case assembly, in-flight shutdown, and reduced control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) For all affected engines:

(i) Inspect all accessible areas, of the combustion chamber case assembly, focusing on the weld joints, at the next scheduled fuel nozzle inspection or replacement, before accumulating 400 hours since last fuel nozzle inspection, or within 50 hours in service after the effective date of this AD, whichever occurs later.

(ii) Thereafter, repeat this inspection before accumulating an additional 400 hours since last inspection of the combustion chamber case assembly.

(iii) Use the Accomplishment Instructions, paragraph 3.B.(1) through 3.B.(2), in Honeywell Service Bulletin TPE331-72-2178, Revision 0, dated May 3, 2011, to do the inspection.

(2) For TPE331-3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A engines with combustion chamber case assemblies, part numbers (P/Ns) 869728-1, 869728-3, or 893973-5, installed, and without the one-piece bleed pad with P3 boss, and for TPE331-1, -2, and -2UA engines modified with increased P3 pressures, including, but not limited to, engines modified by supplemental type certificate (STC) SE383CH, remove the combustion chamber case assembly from service at the next removal of the combustion chamber case from the engine.

(3) For TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -8, -10, -10AV, -10GP, -10GT, -10N, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12JR, -12UA, -12UAR, -12UHR model turboprop and TSE331-3U model turboshaft engines, after the effective date of this AD do not weld repair the combustion chamber case assembly using procedures dated before the effective date of this AD.

(g) Definitions

(1) “Modified with increased P3 pressures” is defined as an engine modification including, but not limited to, TPE331 model engines modified by STC SE383CH (commonly referred to as the “Super 1” and “Super 2” for the compressor modification of the TPE331-1 and the TPE331-2, -2U, and -2UA engines, respectively).

(2) Figures 1 and 2 to paragraph (g) of this AD illustrate the appearance of combustion chamber case assembly, P/N 893973-5, without and with, respectively, the one-piece bleed pad with the P3 boss.

Figure 1 to Paragraph (g) of this AD. Combustion Chamber Case Assembly

Without the One-Piece Bleed Pad with P3 Boss



Figure 2 to Paragraph (g) of this AD. Combustion Chamber Case Assembly with One-Piece Bleed Pad with P3 Boss



(h) Installation Prohibition

After the effective date of this AD, do not install a combustion chamber case assembly, P/N 869728-1, 869728-3, or 893973-5, in an engine, unless the combustion chamber case assembly has a one-piece bleed pad with P3 boss.

(i) Alternative Methods of Compliance (AMOCs)

The Manager, Los Angeles Aircraft Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(j) Related Information

(1) For more information about this proposed AD, contact Joseph Costa, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; phone: 562-627-5246; fax: 562-627-5210; email: joseph.costa@faa.gov.

(2) For service information identified in this AD, contact Honeywell International Inc., 111 S 34th Street, Phoenix, AZ 85034-2802; phone: 800-601-3099; Internet: <https://myaerospace.honeywell.com/wps/portal/!ut/>.

(3) You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on April 6, 2017.

Carlos A. Pestana,
Acting Manager, Engine & Propeller Directorate,
Aircraft Certification Service.
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